

Amendments to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claim 1 (Currently Amended): A method for synchronizing two or of more graphics processing units, comprising:

~~determining whether the phase of a first timing signal of a first graphics processing unit and the phase of a second timing signal of a second graphics processing unit are synchronized; and~~

~~adjusting the frequency of the first timing signal to the frequency of the second timing signal if the first timing signal and the second timing signal are not synchronized~~

~~receiving a clock signal from a clock generator of a first graphics processing unit and an external synchronization signal;~~

~~determining whether the phase of the clock signal and the phase of the external synchronization signal are synchronized;~~

~~adjusting the frequency of the clock generator to the frequency of the external synchronization signal if the phases of the clock signal and the external synchronization signal are not synchronized to generate a synchronized timing signal;~~

~~transmitting the synchronized timing signal to a second graphics processing unit; and~~

~~producing an image for synchronous output to multiple displays using the synchronized timing signal.~~

Claim 2 (Currently Amended): The method of claim 1, further comprising transmitting the synchronized timing signal from the second graphics processing unit to a third graphics processing unit.

Claim 3 (Currently Amended): The method of claim 1, further comprising:

determining whether a first stereo field signal of the first graphics processing unit and a second stereo field signal of the second graphics processing unit are synchronized; and

adjusting the phase of the first second stereo field signal to the phase of the ~~second~~ first stereo field signal if the first stereo field signal and the second stereo field signal are not synchronized to generate a synchronized stereo field signal.

Claim 4 (Currently Amended): The method of claim 3, further comprising transmitting the synchronized stereo field signal from the second graphics processing unit to a third graphics processing unit.

Claim 5 (Currently Amended): The method of claim 1, further comprising synchronizing a swap ready signal of the first second graphics processing unit with a swap ready signal of the ~~second~~ first graphics processing unit.

Claim 6 (Currently Amended): The method of claim 5, wherein synchronizing the swap ready signal of the first second graphics processing unit with the swap ready signal of the ~~second~~ first graphics processing unit comprises:

- receiving a frame divider;
- triggering a new video start address in a memory; and
- determining whether a swap ready element on at least one of the graphics processing units is logically true.

Claim 7 (Original): The method of claim 6, further comprising scanning out data from the memory starting at the new video start address if the swap ready element on the at least one of the graphics processing units is logically true.

Claim 8 (Original): The method of claim 6, further comprising, prior to determining whether the swap ready element on the at least one of the graphics processing units is logically true:

- determining whether the current scanline is within a video blanking interval; and
- scanning out the data from the memory starting at the new video start address if the swap ready element on the at least one of the graphics processing units is logically true and the current scanline is within the video blanking interval.

Claim 9 (Original): The method of claim 6, further comprising performing a series of video memory block transfers if the swap ready element on the at least one of the graphics processing units is logically true.

Claim 10 (Original): The method of claim 6, further comprising, prior to determining whether the swap ready element on the at least one of the graphics processing units is logically true:

determining whether the current scanline is within a video blanking interval; and
performing the series of video memory block transfers if the swap ready element on the at least one of the graphics processing units is logically true and the current scanline is within the video blanking interval.

Claim 11 (Original): The method of claim 6, wherein the swap ready element is logically true when an image content stored in a back portion of a frame buffer in the at least one of the graphics processing units is ready to be transferred to a front portion of the frame buffer.

Claim 12 (Original): The method of claim 6, wherein the swap ready element is logically true when a voltage on the swap ready element is in a logical HIGH state.

Claim 13 (Original): The method of claim 6, wherein the swap ready element is logically true when a voltage on the swap ready element is in a logical LOW state.

Claim 14 (Original): The method of claim 1, wherein the first graphics processing unit and the second processing unit are implemented on one of a silicon substrate, a printed circuit board, and an array of display elements.

Claims 15 -16 (Canceled)

Claim 17 (Currently Amended): A method display system for scanning out data for synchronous display on an array of display elements, comprising:

multiple graphics modules, each graphics module configured to:
receiving receive a frame divider;
triggering a new video start address in a memory;

set a swap ready signal to a logically true state indicating that a portion of an image produced by the graphics module is ready for display on one of the display elements;

determine whether all other graphics modules of the multiple graphics modules that are producing other portions of the image have also set the swap ready signal to the logically true state;

determining whether a swap ready element on at least one of two or more graphics processing units is logically true; and

scanning out data from the memory starting at the new video start address if all other graphics modules of the multiple graphics modules have also set the swap ready signal to the logically true state to provide the data for synchronous display on the array of display elements the swap ready element on the at least one of the two or more graphics processing units is logically true.

Claim 18 (Currently Amended): The ~~method~~ display system of claim 17, wherein each graphics module is further configured to comprising ~~comprising~~ suspending rendering in response to receiving the frame divider.

Claim 19 (Currently Amended): The ~~method~~ display system of claim 17, wherein each graphics module is further configured to comprising, ~~prior to determining whether the swap ready element on the at least one of the two or more graphics processing units is logically true:~~

determining determine whether the a current scanline is within a video blanking interval; and

scanning out the data from the memory starting at the new video start address if the swap ready element on the at least one of the two or more graphics processing units is logically true all other graphics modules of the multiple graphics modules have also set the swap ready signal to the logically true state and the current scanline is within the video blanking interval.

Claim 20 (Currently Amended): The ~~method~~ display system of claim 17, wherein the swap ready ~~signal~~ element is logically true when an image content the portion of the

image produced by the graphics module that is stored in a back portion of a frame buffer in the memory at least one of two or more graphics processing units is ready to be transferred to a front portion of the frame buffer.

Claim 21 (Currently Amended): The ~~method~~ display system of claim 17, wherein the swap ready signal element is logically true when a voltage on the swap ready signal element is in a logical HIGH state.

Claim 22 (Currently Amended): The ~~method~~ display system of claim 17, wherein the swap ready signal element is logically true when a voltage on the swap ready signal element is in a logical LOW state.

Claim 23 (Canceled)

Claim 24 (Currently Amended): A ~~method~~ display system for scanning out data for synchronous display on an array of display elements, comprising:

multiple graphics modules, each graphics module configured to:

receiving receive a frame divider;

set a swap ready signal to a logically true state indicating that a portion of an image produced by the graphics module is ready for display on one of the display elements;

determine whether all other graphics modules of the multiple graphics modules that are producing other portions of the image have also set the swap ready signal to the logically true state;

determining whether a swap ready element on at least one of the two or more graphics processing units is logically true; and

performing a series of video memory block transfers if all other graphics modules of the multiple graphics modules have also set the swap ready signal to the logically true state to provide the data for synchronous display on the array of display elements the swap ready element on the at least one of the two or more graphics processing units is logically true.

Claim 25 (Currently Amended): The ~~method~~ display system of claim 24, wherein each graphics module is further configured to comprising suspending rendering in response to receiving the frame divider.

Claim 26 (Currently Amended): The ~~method~~ display system of claim 24, wherein each graphics module is further configured to comprising, prior to determining whether the swap ready element on the at least one of the two or more graphics processing units is logically true:

~~determining~~ determine whether ~~a~~ the current scanline is within a video blanking interval; and

performing the series of video memory block transfers if the swap ready element on the at least one of the two or more graphics processing units is logically true all other graphics modules of the multiple graphics modules have also set the swap ready signal to the logically true state and the current scanline is within the video blanking interval.

Claim 27 (Currently Amended): The ~~method~~ display system of claim 24, wherein the swap ready signal element is logically true when an image content the portion of the image produced by the graphics module that is stored in a back portion of a frame buffer in the memory at least one of two or more graphics processing units is ready to be transferred to a front portion of the frame buffer.

Claim 28 (Currently Amended): The ~~method~~ display system of claim 24, wherein the swap ready signal element is logically true when a voltage on the swap ready signal element is in a logical HIGH state.

Claim 29 (Currently Amended): The ~~method~~ display system of claim 24, wherein the swap ready signal element is logically true when a voltage on the swap ready signal element is in a logical LOW state.

Claim 30 (Canceled)

Claim 31 (Currently Amended): An apparatus for synchronizing two or more graphics processing units, comprising:

means for determining whether the phase of a first timing signal of a first graphics processing unit and the phase of a second timing signal of a second graphics processing unit are synchronized; and

means for adjusting the frequency of the first timing signal to the frequency of the second timing signal if the first timing signal and the second timing signal are not synchronized

means for receiving a clock signal from a clock generator of a first graphics processing unit and an external synchronization signal;

means for determining whether the phase of the clock signal and the phase of the external synchronization signal are synchronized;

means for adjusting the frequency of the clock generator to the frequency of the external synchronization signal if the phases of the clock signal and the external synchronization signal are not synchronized to generate a synchronized timing signal;

means for transmitting the synchronized timing signal to a second graphics processing unit; and

means for producing an image for synchronous output to multiple displays using the synchronized timing signal.

Claim 32 (Currently Amended): The apparatus of claim 31, further comprising:

means for determining whether a first stereo field signal of the first graphics processing unit and a second stereo field signal of the second graphics processing unit are synchronized; and

means for adjusting the phase of the ~~first~~ second stereo field signal to the phase of the ~~second~~ first stereo field signal if the first stereo field signal and the second stereo field signal are not synchronized.

Claim 33 (Currently Amended): The apparatus of claim 31, further comprising means for synchronizing a swap ready signal of the ~~first~~ second graphics processing unit with a swap ready signal of the ~~second~~ first graphics processing unit.

Claim 34 (New): The method of claim 1, further comprising:

receiving a second clock signal from a clock generator of the second graphics processing unit;

determining whether the phase of the second clock signal of the second graphics processing unit and the phase of the synchronized timing signal received from the first graphics processing unit are synchronized;

adjusting the frequency of the clock generator to the frequency of the external synchronization signal if the clock signal and the external synchronization signal are not synchronized to generate a synchronized second clock signal; and

producing a portion of the image using the synchronized second clock signal.

Claim 35 (New): The apparatus of claim 31, further comprising means for indicating visually that the synchronization timing signal is transmitted from the first graphics processing unit to the second graphics processing unit.